CHANGE REQUEST for FY 08-09 BUDGET REQUEST CYCLE

Department:	Natural Resources
Priority Number:	**1** out of **18**
Change Request Title:	Environmental Staff to Conduct Permit Reviews, Environmental Inspections, and Data Management

SELECT ONE (click on box):

☒ Decision Item FY 08-09
☐ Base Reduction Item FY 08-09
☐ Supplemental Request FY 07-08
☐ Budget Request Amendment FY 08-09

SELECT ONE (click on box):

Supplemental or Budget Request Amendment Criterion:

☒ Not a Supplemental or Budget Request Amendment
☐ An emergency
☐ A technical error which has a substantial effect on the operation of the program
☐ New data resulting in substantial changes in funding needs
☐ Unforeseen contingency such as a significant workload change

Short Summary of Request:

The OGCC is requesting $778,768 cash funds for 8.0 environmental protection specialists, 1.0 environmental technician, and five state vehicles to support recommended changes to the agency's permit review process, environmental inspections, and technician assistance with data management and enforcement. Funds for this request will come from the Oil and Gas Conservation and Environmental Response Fund (Fund #170).

Background and Appropriation History:

The OGCC's Program Cost line funds the OGCC's personnel and operating expenses, including 53.0 FTE, commission hearing expenses, travel expenses, vehicle mileage, information technology, and general office overhead. The employees funded through this line item are involved in field inspections, complaint response, enforcement, permitting, regulatory report reviews, environmental studies, mitigation of impacts caused by oil and gas activity, management of data related to the approximately 33,000 active and 40,000 inactive wells, and general administration.

To address the significant increase in oil and gas industry activity, this long bill line item has increased from $2,732,859 and 33.0 FTE in FY 2004-05 to $4,853,967 and 53.0 FTE

in FY 2007-08. Included in the FY 2006-07 budget were four additional Environmental Protection Specialists (EPS) (FY 2006-07 Figure Setting document, dated February 15, 2006, page 37) that are now located in northwest, southwest, northeast, and southeast Colorado. These four EPSs have become fully engaged in complaint response, spill response, inspections to determine compliance with environmental rules including stormwater discharge, public outreach, oversight of major remediation projects, oversight of emergency response, and coordination with the Division of Wildlife (DOW) regarding wildlife issues. Because the new EPSs are located in the communities where the impacts and allegations of impacts are occurring, they are easily accessible to the concerned citizens and local governments. These constituents are taking full advantage of the OGCC's valuable new resources and are bringing even more concerns to the attention of the OGCC staff.

In response to these concerns and the ongoing record breaking levels of oil and gas activity, the OGCC conducted an in-depth review of its oil and gas well permitting process in spring 2007 to identify areas that could be improved. This internal assessment, aimed at further reducing risk to the environment, resulted in a recommendation to routinely involve the environmental staff in the well permitting process. Historically, permit applications have been reviewed by permit/completion technicians and engineers, with only limited involvement of the environmental protection specialists. The proposed additional level of scrutiny for every permit application would be a major change to the permit process and, without additional staff to perform the reviews, significant delays in the issuance of permits would be expected. Staff members with experience and expertise in protection of environmental resources are needed to conduct the reviews.

The proposed updates to the permitting process will address many issues that drove the oil and gas related legislation in 2007, and conducting more regular on-site environmental assessments of oil and gas facilities will further reduce impacts to the surface, water resources, and wildlife.

General Description of Request: This is a multi-component request that addresses the OGCC's need for three new types of environmental personnel: Environmental Protection Specialist II's for permit application

reviews; Environmental Protection Specialist I's, for environmental inspections; and an Environmental Technician, to assist in the data management and enforcement activities of a growing environmental staff.

Environmental Protection Specialists II (4.0 FTE) 3 located in the Denver office and 1 in the Rifle office:

Under the proposed change to the OGCC's permitting process, environmental protection specialists would conduct more thorough reviews of specific aspects of oil and gas well permit applications, such as proximity to and type of water resource, geologic structures, and surface deposits. They would use topographic maps and aerial photos to a greater extent than the permit/compliance technicians and engineers to verify environmental information. "Ground-truthing" some of the permit applications in the field would be an important part of this environmental review, as some oil and gas operators do not accurately describe types of water resources and other information essential for assessing environmental risk. It would be in the public's interest for OGCC environmental staff to verify the vulnerability of these to impacts from oil and gas development. Field inspections of proposed well locations and associated facilities would be conducted in every situation where new oil and gas operations have reasonable potential to cause adverse impacts to public health, safety, and welfare and the environment. Paperwork reviews and/or field inspections could lead to additional requirements being placed on the permit to ensure that adverse impacts do not occur.

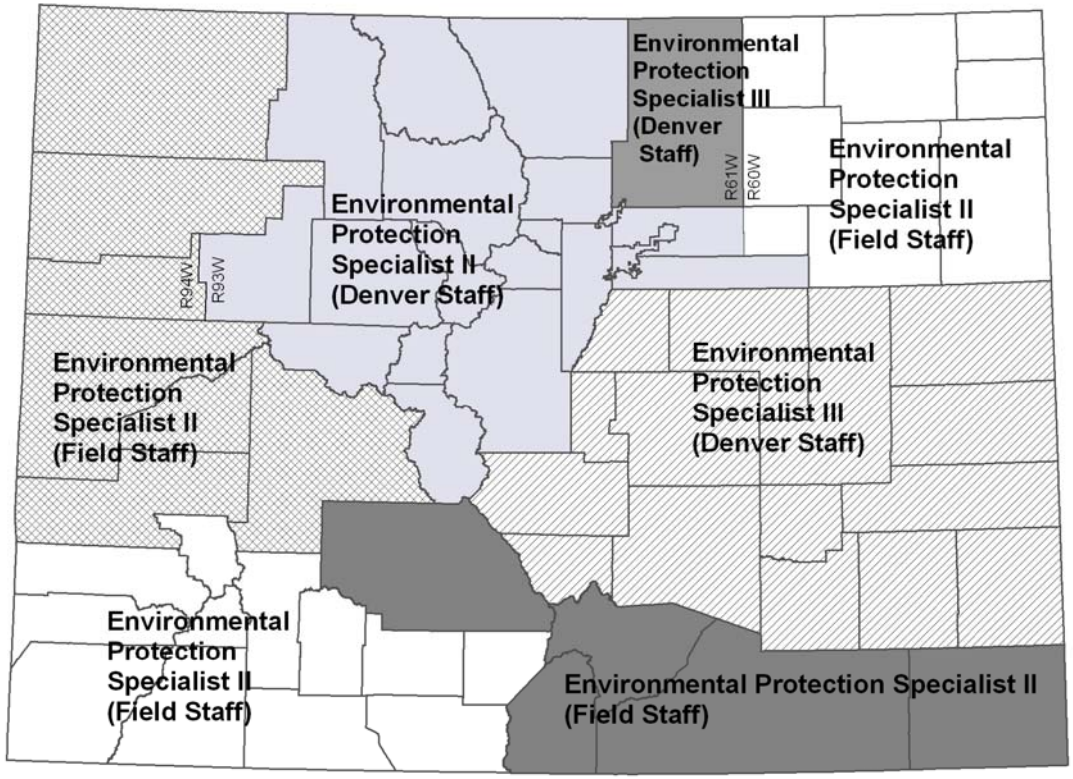
To avoid a bottleneck in the permitting process and excessive delays for permits, the OGCC recommends the addition of four environmental protection specialists, who would focus entirely on reviewing permit applications and inspecting proposed locations, as necessary. The existing environmental staff would stay focused on complaint response, enforcement, and special environmental protection and mitigation studies.

Three of the four requested EPS positions would be located in the Denver office and one would be located in the new Rifle office, because engineers involved in the well permitting process for the northwest area are located there. With three state vehicles already assigned to this remote office, an additional vehicle would not be required for this particular Rifle-based FTE. Three vehicles can be shared by the four employees who

will be working in the Rifle office. The three additional FTE in Denver, however, would drive the need for an additional office pool vehicle, because the four existing vehicles shared by fourteen frequent travelers are too heavily used to accommodate the needs of three new Denver-based employees. The OGCC estimates that the new environmental protection specialists would spend 30% of their time in the field. A minimum of one vehicle would be needed for that amount of field time for three employees.

Environmental Inspectors (Environmental Protection Specialists I, 4.0 FTE) 2 located in northwest Colorado, 1 in southwest Colorado, and 1 in the eastern plains area:

Due to the continuing high level of oil and gas drilling activity and the increasing number of active wells requiring the oversight of the OGCC, the agency's current environmental staff of eight environmental protection specialists is unable to enforce at the level expected by its constituents. The eight EPSs respond to complaints and conduct some routine environmental inspections. But they are frequently diverted to special projects, such as gas seep mitigation, regional ground water studies, reclamation of orphaned sites, remediation of spills and releases, participation in study groups focusing on impacts to wildlife, and oversight of emergency situations (i.e. Bryce 1-X explosion in La Plata County, Bouvier house explosion in Las Animas County, and the uncontrolled release of gas from the CIG gas storage field in Morgan County). The map below shows the distribution of seven current environmental staff members. Four are based in the field and three work out of the Denver office. The map does not include the eighth EPS, a surface protection specialist, who works with landowners and operators throughout the state and conducts special projects where needed.

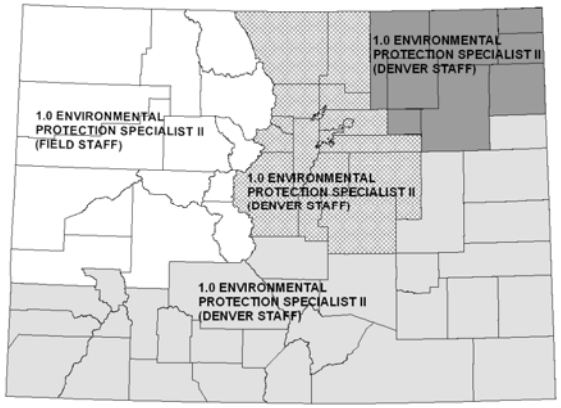


Current Distribution of Environmental Staff

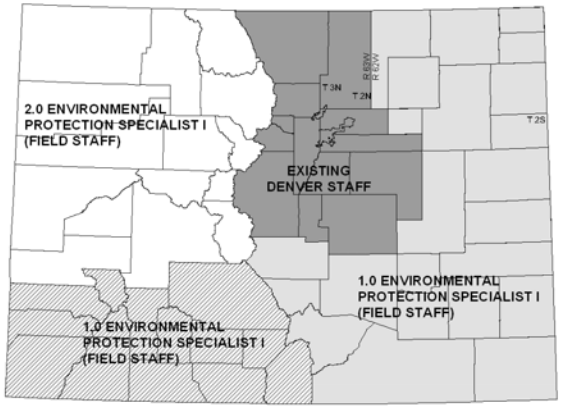
The requested Environmental Inspectors would work out of remote home-based offices and focus on routine inspections for site reclamation. These inspections would be one of their highest priorities, due to the importance of interim reclamation in reducing overall impact to surface owners and wildlife habitat.

Because the Environmental Inspectors would be residing in or in close proximity to areas of high oil and gas activities, they would also be able to quickly respond to complaints and collect water and soil samples, but complex investigations of these complaints would be left to the higher level EPS IIs. The Environmental Inspectors would conduct inspections of oil and gas operations, including wellpads, access roads, and associated production facilities to ensure compliance with OGCC rules, orders, and conditions of approval placed on applications for permits to drill; and follow-up inspections to ensure previous violations of OGCC rules are corrected. The Environmental Inspectors would not routinely be involved in the special environmental projects and investigations, or in the review and approval of exploration and production waste management permits that are conducted by or overseen by the EPS II's. Four such EPS IIs, who work out of remote home-based offices, have been so consumed with this type of work that they cannot conduct enough routine site inspections to enforce the OGCC's reclamation rules.

Each of these Environmental Inspectors will need a personally assigned State vehicle, as they will work from a home-based office and spend most of their time (80%) in the field. The distribution of these inspectors and the EPS IIs requested for permit review are shown on the maps below.



Requested Environmental Protection Specialists
for Permit Review



Requested Environmental Field Inspectors

Environmental Technician (Engineering/Physical Scientist Tech II, 1.0 FTE):

The addition of 8.0 environmental protection specialists to the OGCC would bring the total environmental contingency to 17.0 FTE, with no support staff. An engineering/ environmental technician was added to the agency in FY 2006-07 to assist both the engineering and environmental units, but the needs were so great in both units that the position was dedicated to the larger engineering group, while the environmental group continued to rely on part-time contract help.

This requested position would manage and maintain information on water wells that are the subject of OGCC investigations, gas seeps around the state, and analytical results from formation pressure tests, as well as prepare maps and summary data reports of these and other data. The organized and compiled data would facilitate analysis by the environmental staff to determine whether impacts from oil and gas operations are occurring or have the potential to occur. The position would also track compliance with requirements to submit environmental data that are contained in various Commission Orders and drilling permits to ensure that public health, safety, welfare, wildlife, and the environment are being protected. This compliance tracking, while very important, has not been performed on a regular basis due to other increasing high priority tasks. This work would allow the OGCC to take a more proactive role in anticipating, responding to, and mitigating public health, safety, and welfare and environmental impacts related to oil and gas operations.

Another important task that needs more attention is maintaining complaint, spill/release, remediation, and special project files. Reviewing and entering analytical data that is received in a variety of formats from different laboratories would also improve the efficiency of the environmental unit.

Consequences if Not Funded:

One of the highest priorities of the General Assembly and the Governor during the 2007 legislative session was to reduce impacts to public health, the environment, and wildlife resources from oil and gas development. Not funding this request in FY 2008-09 will significantly delay the increased oversight of the oil and gas industry that is expected by the General Assembly, the Governor, local government, and the public.

Calculations for Request:

Summary of Request FY 08-09	Total Funds	General Fund	Cash Funds (Fund 170)	Cash Funds Exempt	Federal Funds	FTE
Total Request	$778,768		$778,768			9.0
Program Costs	$757,224		$757,224			9.0
Executive Directors Office - Vehicle Lease Payments	$6,860		$6,860			0.0
Executive Directors Office - Amortization Equalization Disbursement	$9,997		$9,997			0.0
Executive Directors Office - Supplemental Amortization Equalization Disbursement	$4,687		$4,687			0.0

Summary of Request FY 09-10	Total Funds	General Fund	Cash Funds (Fund 170)	Cash Funds Exempt	Federal Funds	FTE
Total Request	$767,993		$767,993			9.0
Program Costs	$734,292		$734,292			9.0
Executive Directors Office - Vehicle Lease Payments	$20,580		$20,580			0.0
Executive Directors Office - Amortization Equalization Disbursement	$9,997		$9,997			0.0
Executive Directors Office - Supplemental Amortization Equalization Disbursement	$3,124		$3,124			0.0

Assumptions for Calculations:

- FTEs are employed 12 months in fiscal years 2008-09 and 2009-10.

- The requested EPS I's and the Engineering/Physical Scientist Technician II are hired at 25% above range minimum. The requested EPS II's are hired at 30% above range minimum. These estimates are based on the salary requirements of recently hired employees with environmental/geological experience. Historically, state salaries for these disciplines have been low compared to oil and gas industry salaries, but the wage gap has grown significantly over the last five years. The nation-wide shortage of qualified oil and gas personnel drove the average salary for geological personnel, with 3 to 5 years experience, to $89,600 in 2006, a 33% increase over 2001 salaries. These figures are based on the annual salary survey published by the American Association of Petroleum Geologists (AAPG) in April 2007. The OGCC's minimum requirement for EPS I's is 3 to 5 years of experience. At least 6 to 9 years of experience is required for an EPS II. That level of experience, as reported by AAPG, is earning an average annual salary of $98,500. Environmental protection specialists hired by the OGCC are qualified to work as geologists, or in similarly compensated environmental positions, in the oil and gas industry.

  At the requested annual starting salaries of $64,425, $77,563, and $56,880 for EPS I's, EPS II's, and the Engineering/Physical Scientist Technician II, respectively, this decision item does not attempt to match industry salaries. The requested salaries, however, are at the minimum needed to attract a few candidates who have industry experience and the desire to work in public service.

- All four field based environmental inspectors will be assigned a State vehicle. The three Denver-based EPS II's will share one vehicle. A total of five new vehicles are included in the Executive Director's Office - Vehicle Lease Payments line.

- 4-wheel drive vehicles are needed to access well locations.

- Hybrid SUVs will be ordered if State Fleet's vendor can provide appropriate hybrid vehicles for use on oil and gas lease roads.

- Vehicle lease payment and variable rate paid to State Fleet is estimated at $343/month and $0.121/mile, respectively for hybrid SUVs for FY 08-09 - per 7/20/07 discussion with State Fleet.

- Employees will be driving temporary vehicles from State Fleet until permanent vehicles arrive; therefore the variable vehicle expenses (for mileage) will be incurred for the entire 12 months the FTE's are expected to be employed in FY 2008-09.

- Laptops (quoted in June 2007 for a Dell 520 @ $1,578) are required for employees who are frequently in the field. These field laptops must be capable of holding all data in the Colorado Oil and Gas Information System (COGIS) database and run the programs that access the data.

- For safety and business purposes, cell phones are provided for all State owned vehicles. When a vehicle is shared among several employees, the cell phone assigned to the vehicle is also shared.

Impact on Other Government Agencies: HB07-1341 and HB07-1298 require the OGCC to include the Colorado Department of Public Health and Environment (CDPHE) and the Division of Wildlife (DOW) in its

rulemaking and drilling permit review process. These statutory changes will likely result in the identification of previously unregulated aspects of the oil and gas industry and the promulgation of new rules to address them. It also appears likely that CDPHE staff will become more involved with public health-based and air quality issues, while the OGCC staff will continue to take the lead in ground water, surface water, reclamation, and other environmental matters and the implementation of OGCC rules. The additional environmental staff would assist the OGCC in its efforts to enforce existing rules, as well as be in place and prepared to enforce additional rules that are expected. No conflicts with CDPHE and DOW are expected.

The Department of Personnel and Administration's Fleet Management division would be impacted by the addition of five State owned vehicles.

Cost Benefit Analysis:

A cost benefit analysis has been prepared for each of the three types of environmental personnel requested.

The following charts provide an analysis of some of the major potential risks to public health, safety, welfare and the environment created by oil and gas activity that the OGCC will not be able to adequately address without the approval of this request. There are incremental risks associated with the diminished ability of the OGCC to focus on; 1) the environmental review of applications for permits to drill, 2) the environmental oversight of oil and gas operations, and 3) the identification of operators' non-compliance with environmental requirements and the management of water well, formation pressure test, and gas seep data. The charts assign a potential cost of each risk item to effected entities and calculate total potential annual cost avoidance.

Environmental Protection Specialist II (4.0 FTE; $378,258 FY 08-09; $366,021 FY 09-10)

Assessment of Annual Incremental Risk Attributed to Alternative 2 - "No Action" (not funding 4 new EPS II for reviewing of Applications for Permits to Drill)

Issue	Impact to	Cost Per Occurrence	Annual Frequency	Annual Cost of Impacts	Health Safety and Welfare Impact	Incremental Risk Factor	Cost of Incremental Risk	Cost Incurred by
Contamination from improperly constructed wells, due to lack of review of site specific geology and hydrogeologic data. [A]	Surface owners, surface waters, soils, ground water	$60,000	5	$300,000	High	50%	$150,000	Industry and OGCC
Contamination from improperly located & constructed well pads, access roads, drilling pits & associated production facilities, due to lack of review of site specific surface water resource data. [B]	Surface owners, surface waters, soils	$50,000	25	$1,250,000	High	50%	$625,000	Industry and OGCC
Excessive disturbance to surface and wildlife habitat from improperly located well pads access roads, & associated production facilities, due to lack of review of site specific conditions and mitigation requirements. [C]	Surface owners, surface waters, soils, ground water, wildlife	$20,000	100	$2,000,000	High	50%	$1,000,000	Industry and OGCC
Total Cost							**$1,775,000**	

Footnotes:

A. As part of the current review of applications for permits to drill, the engineering staff uses information from the State Engineer's Office to determine the depths of the water wells in the vicinity of every proposed oil and gas well. The engineering staff uses these depths to determine the amount of surface casing and cement that are necessary to cover the ground water resources that are being used in the area and protect them from impacts from oil and gas drilling and production. In addition to the engineers' comprehensive review, the new EPS IIs would review other site specific geologic and hydrogeologic data, which would be especially valuable in determining appropriate conductor pipe,

surface casing, and cement requirements in areas that do not have any water wells or in areas for which the State Engineer's Office does not have data on existing wells. The new EPS IIs would also review the OGCC records for old plugged and abandoned wells in the vicinity of the proposed well to evaluate the adequacy of the cement plugs and for old oil and gas wells that have been converted to water wells to evaluate their potential to act as conduits for hydrocarbon migration into fresh water aquifers.

Failure to review site specific geologic, hydrogeologic, and old oil and gas well data creates the potential for water wells to be contaminated because of inadequate quantities of conductor pipe, surface casing, and cement. Treatment and monitoring systems can be installed to mitigate impacts from hydrocarbon or other exploration and production waste. For domestic water wells these systems can be very expensive to install and maintain. The agency assumes a cost of approximately $60,000 per system, which includes the costs for installing a vent on the water well, an air sparging system to remove the hydrocarbon, a chlorination system to disinfect treated water, a shed to contain treatment equipment, a vent on the shed, an underground cistern to store treated water, a methane detection system in the shed and residence, and routine maintenance of the system. The agency assumes that five water wells have the potential to be impacted by oil and gas wells that are improperly constructed or plugged and abandoned because site specific geologic, hydrogeologic, and old oil and gas well data are not currently reviewed. This figure represents a portion of the total number of water wells (8) that were contaminated in FY 2006-07 and the water wells (11) that had been impacted in FY 2007-08 as of July 31, 2007.

It is estimated that the additional review of applications for permits to drill provided by the four new EPS IIs would eliminate at least 50% of these occurrences.

B. By reviewing site specific geologic and hydrogeologic data, including surface water resources, Army Corp of Engineers 404 Permits, and topography, the requested EPS IIs would help determine whether additional conditions of approval should be applied to a drilling permit to ensure surface water resources are protected. Review would include wellpads, drilling pits, access roads, and associated production facilities. If required to

confirm site specific conditions, the new EPS IIs would conduct pre-construction site inspections.

The failure to review site specific geologic and hydrogeologic data and to conduct pre-construction site inspections, creates a potential for surface water to be contaminated by oil and gas operations, storm water runoff, and improperly constructed drilling pits. Impacts to surface water have the potential to impact wildlife and the public. Remediation of contamination of surface water resources from hydrocarbon, drilling fluid, or other exploration and production waste can be very costly; the agency assumes an average remediation cost of $50,000 for each incident, based on the estimated costs to collect and analyze surface water and waste samples, recover and dispose of the spilled/released waste and impacted water, remediate soil, wetland vegetation, and shallow ground water that may be in contact with the impacted surface water and waste, reclaim areas necessarily disturbed by the remediation activities, and monitor surface water to verify the success of the remediation. The agency assumes that 25 surface water resources have the potential to be impacted by improperly constructed wellpads, drilling pits, access roads, and associated production facilities because site specific geologic and hydrogeologic data are not currently reviewed. It is estimated that the additional review of applications for permits to drill provided by the new EPS IIs would eliminate about 50% of these occurrences.

C. The new EPS IIs would also work with and encourage operators to develop comprehensive development plans that will address land disturbance and wildlife habitat issues. The failure to review site specific data creates a potential for excessive disturbance to land surface and wildlife habitat. Mitigation, remediation, and reclamation of such disturbances can be very costly; the agency assumes an average cost of $20,000 per incident, based on an estimated average of 2 acres of land being unnecessarily disturbed and an average cost of $10,000 per acre to recontour, stabilize with erosion and stormwater controls (berms, diversions, erosion blankets, silt barriers, check dams, sediment traps, and other stormwater management devices), maintain these controls, reseed, manage and eliminate weeds, and on non-cropland reestablish perennial vegetation. The agency assumes that 100 sites have the potential for excessive disturbance to land surface or wildlife habitat from oil and gas well pads, access roads,

and associated production facilities that are improperly constructed because site specific geologic and hydrogeologic data are not currently reviewed. It is estimated that the additional review of applications for permits to drill provided by the 4 new EPS IIs would eliminate about 50% of these occurrences.

The 4 EPS IIs in this request have a second full year cost of $366,021, which is substantially less than the $1,775,000 of incremental risk that is avoided. ***Therefore, the benefit-cost ratio is 4.8.***

Environmental Inspectors (Environmental Protection Specialist I; 4.0 FTE; $331,290 FY 08-09; $335,923 FY 09-10)

Assessment of Annual Incremental Risk Attributed to Alternative 2 - "No Action" (not funding 4 Environmental Inspector positions)

Issue	Impact to	Cost Per Occurrence	Annual Frequency	Annual Cost of Impacts	Health Safety and Welfare Impact	Incremental Risk Factor	Cost of Incremental Risk	Cost Incurred by
Contamination from unreported leaking production equipment and pits. [A]	Surface owners, surface waters, soils, ground water	$25,000	25	$625,000	High	75%	$468,750	Industry and OGCC
Delayed compliance with interim reclamation rules for wellpads, access roads, and production facilities. [B]	Surface owners, wildlife, surface waters, soils	$10,000	250	$2,500,000	High	100%	$2,500,000	Industry, OGCC, and Surface Owner
Unauthorized discharge and improper disposal of produced water or other exploration and production wastes. [C]	Surface owners, surface waters, soils, ground water, wildlife	$65,000	12	$780,000	High	50%	$390,000	Industry and OGCC
Total Cost							**$3,358,750**	

Footnotes:

A. Contamination from leaking production equipment and pits. The new Environmental Inspectors would conduct additional inspections on production facilities and pits to ensure they are not leaking produced water or other exploration and production wastes to ground or surface water, or to adjacent land. Mitigation, remediation, and reclamation of impacts from leaking production equipment and pits can be very costly. As an example, the average cost for the excavation, removal, and disposal of soils impacted by oil from leaking production equipment and improperly managed pits is approximately $50/cubic yard. The OGCC staff has seen oil impacted areas ranging from approximately 25 cubic yards to 10,000 cubic yards. The average cost to investigate and remediate spills/releases

of exploration and production waste is approximately $25,000, based on an estimated average of 500 cubic yards of oil impacted soil and $50 per cubic yard cost for excavation, removal, and disposal. The agency assumes that 25 sites have the potential to be impacted from unreported spills/releases from pits and production equipment. It is estimated that the additional inspections conducted by the four new Environmental Inspectors would eliminate about 75% of these occurrences. Although detection and early enforcement response to these situations would not eliminate all impacts, it would keep the impacted areas and volumes of released waste to the environment smaller. This would reduce the amount of time and money needed for remediation and reclamation.

B. Due to workload, insufficient staff, and other high priority work, interim reclamation inspections are not performed on a frequency or schedule that would ensure the highest protection to surface owners, wildlife, and water resources. Although detection and early enforcement on operators not in compliance with OGCC interim reclamation rules would not eliminate all impacts, it would significantly reduce the potential for sediment from the unreclaimed areas to impact adjacent land and water resources, decrease the amount of time the disturbed land was unavailable for crops, livestock, and wildlife habitat, and decrease the overall costs for reclamation.

Of the interim reclamation inspections conducted by the new Environmental Inspectors, the agency assumes that at least 250 sites would not be in compliance with OGCC's interim reclamation rules. The OGCC estimates the average lost value of this land to be about $5,000 per acre. The area impacted by non-compliance is typically one acre per well site, therefore the lost value per site is approximately $5,000. The additional cost to reclaim these sites, when interim reclamation rules are violated, averages about $5,000. If the responsible party goes bankrupt the reclamation costs are usually borne by the State. Therefore, the total cost that can be avoided through early detection and enforcement is $10,000 per site. The additional inspections that would be conducted by the four proposed Environmental Inspectors are expected to eliminate about 100% of these occurrences.

C. Because of the record breaking levels of oil and gas development in the state, there has been an increase in the number of incidents of unauthorized discharge of produced water and improper disposal of other exploration and production wastes. Additional field presence of the environmental staff will allow the OGCC to respond rapidly to complaints about this sort of illegal activity and, catch and enforce against operators, and conduct additional inspections that would discourage the use of illegal methods of waste disposal. Mitigation, remediation, and reclamation of impacts from the unauthorized discharge or illegal disposal of exploration and production wastes can be very costly.

As an example, the average cost to remediate land that has been impacted by high concentrations of salts from the unauthorized or illegal discharge of produced water is approximately $13,000 per acre. The OGCC has seen salt impacted areas ranging from about one acre to 25 acres. The agency assumes an average remediation cost of $65,000 for each incident, based on an estimated average of five acres of land impacted by salt from produced water and $13,000 per acre cost for remediation. The agency assumes that 12 incidents of unauthorized discharge or illegal disposal of exploration and production wastes have the potential to occur annually. It is estimated that the additional inspections and complaint response provided by the four new Environmental Inspectors would eliminate about 50% of these occurrences.

The four Environmental Inspectors in this request have a second full year cost of $335,923, which is substantially less than the $3,358,750 of incremental risk that is avoided. ***The benefit-cost ratio is therefore 10.0.***

Environmental Technician (Engineering/Physical Science Technician II;1.0 FTE; $69,220 FY 08-09; $66,049 FY 09-10)

Assessment of Annual Incremental Risk Attributed to No Action Alternative (not funding an Environmental Technician)

Issue	Impact to	Cost Per Occurrence	Annual Frequency	Annual Cost of Impacts	Health Safety and Welfare Impact	Incremental Risk Factor	Cost of Incremental Risk	Cost Incurred by
Impacts to water wells due to delays in identifying non-compliance with environmental requirements from Orders and conditions of approval for drilling permits. [A]	OGCER Fund and Surface owners, surface waters, soils, ground water	$60,000	2	$120,000	High	50%	$60,000	OGCC & Industry
Wells becoming state's responsibility (orphaned) due to delays in identifying inactive wells and inadequately plugged and abandoned wells in coalbed methane basins. [B]	OGCER Fund	$25,000	5	$125,000	Medium	50%	$62,500	OGCC
Impacts to water wells. [C]	Surface owners, surface waters, soils, ground water	$60,000	2	$120,000	High	100%	$120,000	OGCC & Industry
Impacts to public health, safety, the environment, and wildlife & water resources due to gas seeps. [D]	Surface owners, surface waters, soils, ground water	$250,000	1	$250,000	High	10%	$25,000	OGCC & Industry
Total Cost							**$267,500**	

Footnotes:

A. Operators of wells that are not in compliance with various environmental requirements from Commission Orders and conditions of approval for applications for permits to drill will be identified. Staff will then require the operator to conduct the necessary test or to collect and submit the required data. This information will be compiled by the Environmental Technician and used by the environmental staff to determine whether there are impacts or potential for impacts to public health, safety, and welfare, and the environment including water resources and wildlife. If impacts are discovered or appear to have the potential to occur, then the operator will be required to submit a Form 27 Site Investigation/Remediation Workplan for approval and to remediate impacts. Identifying impacts as early as possible will help limit the spread of contamination and the aerial extent of the impacts, which in turn will reduce the costs for remediation.

Cost per occurrence for this issue is based on the cost of plugging a contaminated water well and drilling a new water well. The agency assumes that two incidences occur per year that could be identified if all required data were provided to the OGCC and if the Environmental Technician would compile these data for analysis by the environmental staff. The Environmental Technician would eliminate about 50% of these occurrences.

B. Delays in identifying inactive wells with a high potential to become orphaned increases the State's potential liability. Delays in identifying plugged and abandoned wells in coalbed methane (CBM) basins, such as the San Juan and Raton Basins, increases the potential risks of explosion caused by methane gas seepage from these wells. Delays in tracking new exploratory CBM development in parts of other basins limits the OGCC's ability to require proactive environmental monitoring for these projects. The Environmental Technician will manage data and generate computer reports. These reports can help the agency identify and track wells that are at high risk of acting as conduits for methane migration to the ground surface. By tracking these wells, the OGCC can work cooperatively with operators to ensure these sites are identified and tested for the presence of methane at the ground surface, and if they are found to be leaking, ensure that they are properly plugged and abandoned. This information would be readily available on the OGCC's website for use by local government building departments in their review of building permit applications.

Cost per occurrence figures were generated assuming $25,000 is required to plug and abandon one well. The OGCC estimates that approximately five inactive wells that have a high potential to become orphaned and to act as conduits for methane migration could be found each year using computer reports to help focus field investigation. The Environmental Technician would eliminate about 50% of these occurrences.

C. The OGCC maintains an extensive database of water well test results collected by staff and third party contractors for baseline ground water studies and complaint investigation, and by industry for baseline studies and investigation and remediation of impacts from oil and gas activities. Analysis of these data can provide early indications of water well contamination.

Cost per occurrence for this issue is based on the cost of plugging a contaminated water well and drilling a new water well. Identifying impacts as early as possible will help limit the spread of contamination and the aerial extent of the impacts, which in turn will reduce the costs for remediation. The agency assumes that two incidences of impacts to water wells occur per year that could be identified if the Environmental Technician compiled these data systematically for additional analysis by the environmental staff. The Environmental Technician would eliminate about 100% of these occurrences.

D. This position will systematically manage data that will be used to track areas of gas seepage in the San Juan and Raton Basins, located in southwestern and south-central Colorado, respectively. Local governments use these data to delineate areas of geologic hazard and areas where precautions must be taken as rural residential development encroaches upon them. Costs for mitigating gas seepage can be high and $250,000 assumes mitigating an entire gas seep area. The agency assumes that 10% of a gas seep area is occupied by structures that require mitigation to alleviate safety issues.

The Environmental Technician position in this request has a second full year cost of $66,049, which is substantially less than the $267,500 of incremental risk that is avoided. ***The benefit-cost ratio is therefore 4.0.***

Definition of terms used in above charts:

Annual Frequency – Annual average number of total occurrences in Colorado.
Incremental Risk Factor - Percentage of impact that would be reduced by funding this request (multiplier to calculate cost of incremental risk).
Cost of Incremental Risk – Portion of annual cost of impacts that is at risk if request is not funded.

Benefit-Cost Summary:

FTE Type	**2nd Year Full Cost**	**Estimated Benefit**
Environmental Protection Specialist II's (for permit review) - includes one vehicle	$366,021	$1,775,000
Environmental Inspectors – includes four vehicles	$335,923	$3,358,750
Environmental Technician	$66,049	$267,500
Totals	**$767,993**	**$5,401,250**
Benefit-Cost Ratio for Total Request = 7.0		

Implementation Schedule:

Task	Month/Year
FTE Hired	July 1, 2008

Statutory and Federal Authority:

34-60-102(1) C.R.S. (2006, as amended by HB07-1341): Oil and Gas Conservation Act – declares it is to be in the public interest to foster the responsible, balanced development, production, and utilization of the natural resources of oil and gas in the state of Colorado in a manner consistent with protection of public health, safety, and welfare, including protection of the environment and wildlife resources…

34-60-106(2)(d) C.R.S. (2006, as amended by HB07-1341): The commission has the authority to regulate…Oil and gas operations so as to prevent and mitigate significant adverse environmental impacts on any air, water, soil, or biological resource resulting from oil and gas operations to the extent necessary to protect public health, safety, and welfare, including protection of the environment and wildlife resources, taking into consideration cost-effectiveness and technical feasibility.

Performance Measures:

Performance Measure:	Outcome	FY 05-06 Actual	FY 06-07 Actual	FY 07-08 Approp.	FY 08-09 Request
Decrease water contamination from active oil and gas operations.					
Number of impacts to surface water, ground water, and water wells, per thousand active oil & gas wells	Benchmark	1.81	1.81	1.81	1.81
	Actual	1.81	1.97		
The OGCC needs the requested FTE to meet the benchmark or improve on it. An expected outcome of this request is a reduction in the number of impacts to the State's water resources.					

Performance Measure:	Outcome	FY 05-06 Actual	FY 06-07 Actual	FY 07-08 Approp.	FY 08-09 Request
Decrease surface disturbance caused by oil and gas activity					
Percent of reclamation inspections that comply with OGCC rules.	Benchmark	86%	86%	86%	86%
	Actual	86%	81%		
The OGCC needs the requested FTE to meet the benchmark or improve on it. An expected outcome of this request is a reduction in the size and duration of surface disturbance. Routine interim reclamation inspections and regular enforcement of violations should result in a significant improvement in the number of reclamation inspections that comply with OGCC rules.					

Performance Measure:	Outcome	FY 05-06 Actual	FY 06-07 Actual	FY 07-08 Approp.	FY 08-09 Request
Decrease in health, safety, and environmental (other than water) incidences caused by oil & gas operations.					
Total number of citizen complaints per thousand active oil & gas wells	Benchmark	9.27	9.27	9.27	9.27
	Actual	9.27	10.71		
Funding this request is essential for reducing citizen complaints. All three types of FTE's will be focused on prevention and early detection of oil and gas impacts to public health, safety, welfare, the environment and wildlife resources.					